



MI FluFocus

Influenza Surveillance and Avian Influenza Update

Bureau of Epidemiology
Bureau of Laboratories



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November 12, 2009
Vol. 6; No. 43

New updates in this issue:

- **Michigan Surveillance:** Most surveillance systems continue to see sustained and elevated influenza activity; however, most data for the week of November 1-7 appears to have reached a plateau.
 - **National Surveillance:** CDC reports >99% of influenza A viruses were 2009 influenza A (H1N1) viruses.
 - **International Surveillance:** Intense and persistent transmission continues to be reported in N. America.
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******2009 Influenza A (H1N1) virus Updates******

On August 17 and September 18, MDCH released guidance for healthcare providers, laboratorians and public health personnel regarding appropriate patients for influenza testing at the MDCH lab and reporting of influenza hospitalizations and deaths. The guidance is available at www.michigan.gov/h1n1flu.

Please continue to reference the State of Michigan's novel 2009 influenza A (H1N1) website at www.michigan.gov/h1n1flu and the MDCH influenza website at www.michigan.gov/flu for additional information. Local health departments can find guidance documents in the MI-HAN document library. In addition to the previous websites, additional laboratory-specific information is located at the Bureau of Laboratories H1N1 page at http://www.michigan.gov/mdch/0,1607,7-132-2945_5103-213906--,00.html.

International (WHO H1N1 2009 update 73 [edited], November 6): Intense and persistent influenza transmission continues to be reported in North America without evidence of a peak in activity. The proportion of sentinel physician visits due to influenza-like-illness (ILI) (8%) has exceeded levels seen over the past 6 influenza seasons; 42% of respiratory samples tested were positive for influenza and 100% of subtyped influenza A viruses were pandemic H1N1 2009. Rates of ILI, proportions of respiratory samples testing positive for influenza, and numbers of outbreaks in educational settings continues to increase sharply in Canada as activity spreads eastward. Significantly more cases of pandemic H1N1 have been recorded in Mexico since September than were observed during the initial springtime epidemic.

In Europe and Central and Western Asia, pandemic influenza activity continues to increase across many countries, signaling an unusually early start to the winter influenza season. Active circulation of virus marked by high proportions of sentinel respiratory samples testing positive for influenza has been reported in Belgium (69%), Ireland (55%), Netherlands (51%), Norway (66%), Spain (46%), Sweden (33%), the United Kingdom (Northern Ireland:81%), and Germany (27%). In addition, there is evidence of increasing and active transmission of pandemic influenza virus across Northern and Eastern Europe (including Ukraine and Belarus), and eastern Russia. For details on the situation in Ukraine please refer to the Disease Outbreak News update below. In Western Asia and the Eastern Mediterranean Region, increasing activity has been reported in Oman and Afghanistan.

In East Asia, intense and increasing influenza activity continues to be reported in Mongolia. In China, after an earlier wave of mixed influenza activity (seasonal H3N2 and pandemic H1N1), pandemic H1N1 activity now predominates and is increasing. Sharp increases in pandemic influenza activity continue to be reported throughout Japan with highest rates of illness being reported on the northern island.

Active influenza transmission and increasing levels of respiratory diseases continues to be reported in parts of the Caribbean, including in Cuba, Haiti, and other Caribbean Epidemiology Centre (CAREC) countries. Most other countries in the tropical region of Central and South America continue to report declining influenza activity. With the exception of Nepal, Sri Lanka, and Cambodia, overall transmission

continues to decline in most but not all parts of tropical South and Southeast Asia. Influenza virus isolates from sub-Saharan Africa are predominantly pandemic H1N1 virus but some seasonal H3N2 has been detected even in recent weeks. Unconfirmed media reports from the area indicate that disease activity has increased in recent weeks.

Since the new pandemic H1N1 2009 virus emerged, infections in different species of susceptible animals (pig, turkey, ferret, and cat) have been reported. Limited evidence suggests that these infections occurred following direct transmission of the virus from infected humans. These isolated events have had no impact on the dynamics of the pandemic, which is spreading readily via human-to-human transmission. As human infections become increasingly widespread, transmission of the virus from humans to other animals is likely to occur with greater frequency. Unless the epidemiology of the pandemic changes, these will continue to pose no special risks to human health.

The countries and overseas territories/communities that have newly reported their first pandemic (H1N1) 2009 confirmed cases since the last web update (No.72): Congo. The countries and overseas territories/communities that have newly reported their first deaths among pandemic (H1N1) 2009 confirmed cases since the last web update: Afghanistan, Croatia, Mongolia, Tanzania and Ukraine.

Influenza Surveillance Reports

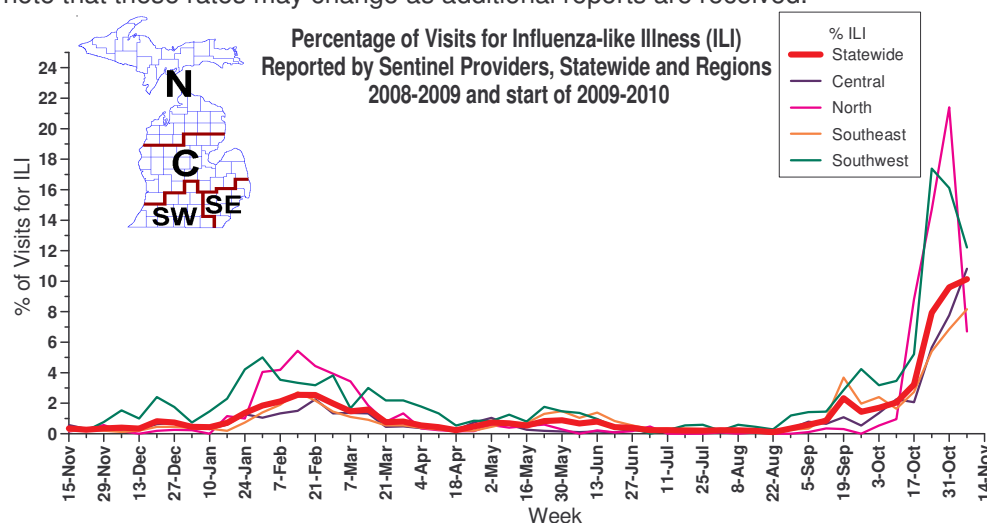
Michigan Disease Surveillance System: The week ending November 7 saw aggregate flu-like numbers slightly decrease from the previous week's levels, while individual influenza reports were comparable to the previous week. The novel 2009 H1N1 influenza reports again saw a notable increase over the previous week's numbers. All reports are notably higher than reports from this time last year.

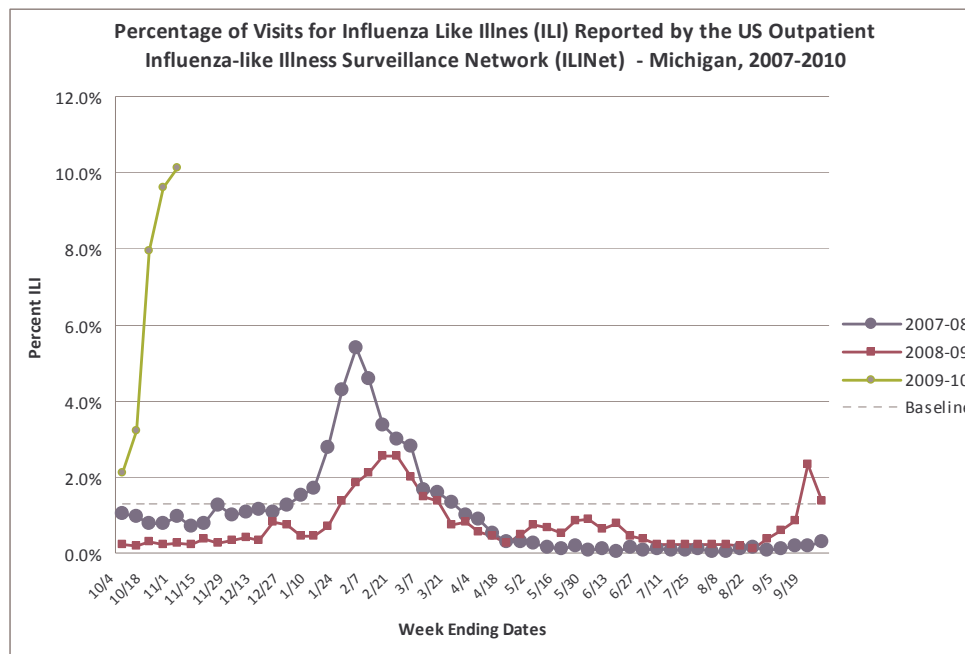
During the week of November 1-7, 2009, 38,158 cases of flu-like illness and confirmed and probable cases of seasonal and novel influenza were reported in Michigan. 343 hospitalizations and 8 deaths associated with influenza were also reported during this time. This report is updated every Tuesday by 5:00 pm and can be accessed at a link on this website: <http://www.michigan.gov/h1n1flu>.

Emergency Department Surveillance: Emergency department visits from both constitutional and respiratory complaints were slightly lower than last week's levels. Constitutional complaints are notably higher than this time last year and notably higher than peaks of previous influenza seasons. Respiratory complaints are somewhat higher compared to what was seen at this time last year. Four constitutional alerts were generated in the SW(2), C(1), and SE(1) Influenza Surveillance Regions last week. Five respiratory alerts were generated in the N(4) and C(1) Influenza Surveillance Regions last week.

Over-the-Counter Product Surveillance: Overall, OTC product sales were mixed. Thermometer sales saw a slight decrease in sales compared to the previous week. The remainder of the indicators held steady near the previous weeks' sales numbers. All sales indicators, with the exception of thermometer sales, which are slightly higher, are comparable to levels seen at this time last year.

Sentinel Provider Surveillance (as of November 12, 2009): During the week ending November 7, 2009, the proportion of visits due to influenza-like illness (ILI) increased for the sixth consecutive week to 10.1% overall; 847 patient visits due to ILI were reported out of 8,363 office visits. Thirty sentinel sites provided data for this report. Activity increased in two surveillance regions: Central (10.8%) and Southeast (8.2%) regions and decreased in the Southwest (12.2%) and North (6.7%) regions. Pediatrician offices reported a mean ILI of 13.4% and Student Health Centers reported a mean of 10.4%. Please note that these rates may change as additional reports are received.





As part of pandemic influenza surveillance, CDC and MDCH highly encourage year-round participation from all sentinel providers. New practices are encouraged to join the sentinel surveillance program today! Contact Cristi Carlton at 517-335-9104 or CarltonC2@michigan.gov for more information.

Laboratory Surveillance (as of November 7): During the week of November 1-7, MDCH Bureau of Laboratories identified 72 novel H1N1 influenza A isolates. For the 2009-2010 season (starting on October 4, 2009), MDCH BOL has identified 420 influenza isolates:

- Novel Influenza A (H1N1): 414
- Influenza A unsubtypeable: 5
- Influenza B: 1

18 sentinel labs reported for the week ending November 7, 2009. 3 labs reported continued increasing influenza A positives (SE, C), 6 labs reported decreasing but still elevated levels of influenza A positives (SE, SW, N), 6 labs had decreasing or sustained moderate levels of A positives (SE, SW, C, N), and 3 labs reported sporadic A positives (C, N). 1 lab reported sporadic influenza B positives (N).

Michigan Influenza Antigenic Characterization (as of November 12): One novel H1N1 influenza A virus from Michigan has undergone further characterization at the CDC. This virus was characterized as A/California/07/2009 (H1N1)-like, which is the recommended strain for the H1 component of the 2010 Southern Hemisphere vaccine.

Michigan Influenza Antiviral Resistance Data (as of November 12): Results are currently not available for antiviral resistance at CDC for the 2009-2010 season.

Antiviral resistance testing takes months to complete and cannot be used to guide individual patient treatment. However, CDC has made recommendations regarding the use of antivirals for treatment and prophylaxis of influenza. The guidance is available at <http://www.cdc.gov/H1N1flu/recommendations.htm>.

Seasonal Influenza-Associated Pediatric Mortality (as of November 12): Three influenza-associated pediatric mortalities (SE, SW, N) associated with novel H1N1 influenza has been reported to MDCH for the 2009-2010 influenza season.

***CDC has asked states for information on any pediatric death associated with influenza. This includes not only any pediatric death (<18 years) resulting from a compatible illness with laboratory confirmation of influenza, but also any unexplained pediatric death with evidence of an infectious process. Please immediately call MDCH to ensure proper specimens are obtained. View the complete MDCH protocol online at http://www.michigan.gov/documents/mdch/ME_pediatric_influenza_guidance_v2_214270_7.pdf.

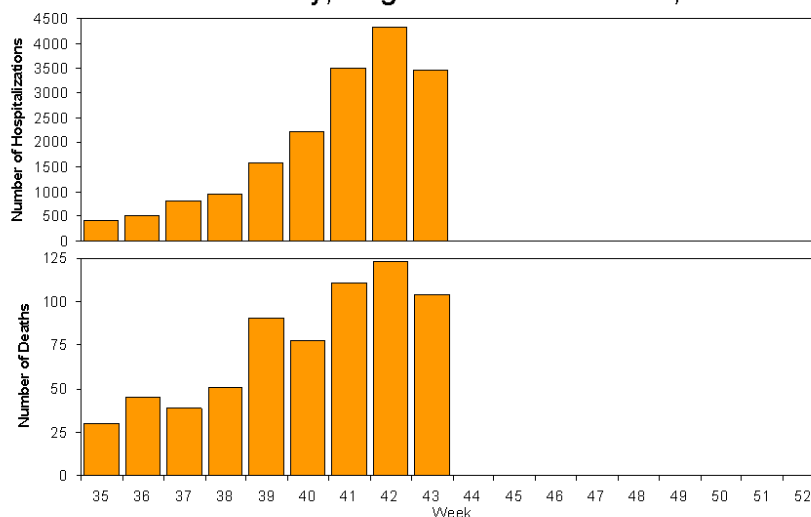
Influenza Congregate Settings Outbreaks (as of November 12): Five congregate setting outbreaks with confirmatory novel influenza A H1N1 testing (3 SW, 1C, 1N), and two outbreaks associated with

positive influenza A tests (1C, 1N) have been reported to MDCH for the 2009-2010 influenza season. These are all school facilities.

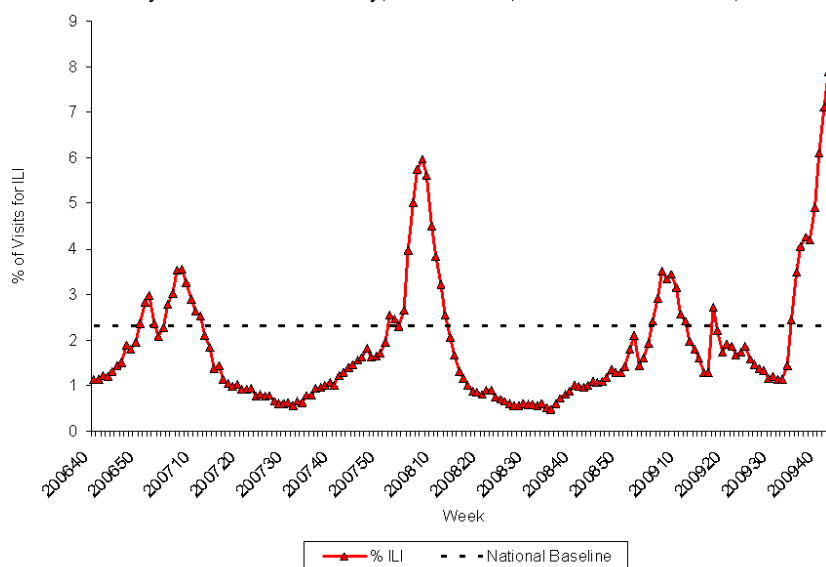
As of 9:00am on November 12, 559 influenza-related school and/or district closures in Michigan (Public Health Preparedness Region 1 - 54, Region 2N - 3, Region 2S - 8, Region 3 - 54, Region 5 - 152, Region 6 - 98, Region 7 - 108, Region 8 - 82) have been reported.

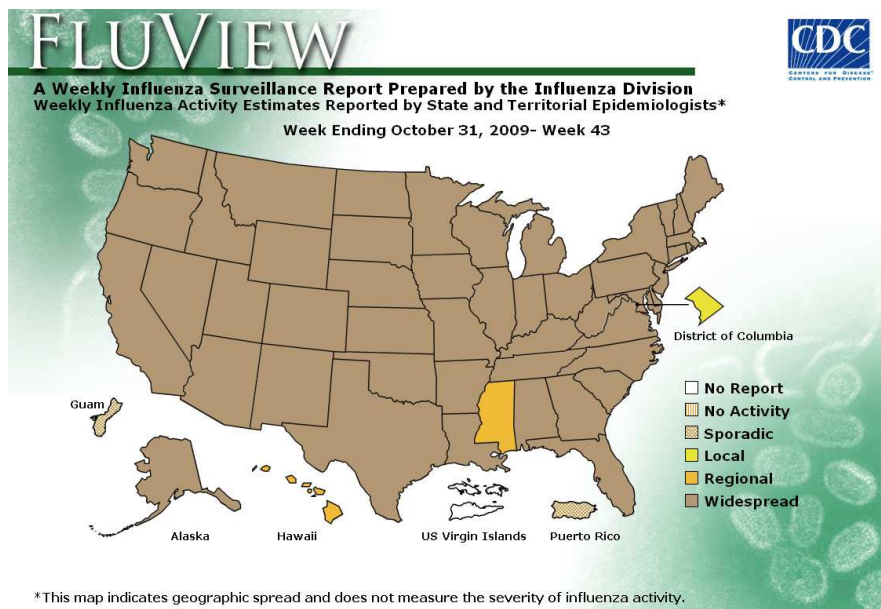
National (CDC [edited], November 6): During week 43 (October 25-31, 2009), influenza activity remained elevated in the U.S. 5,258 (37.2%) specimens tested by U.S. World Health Organization (WHO) and National Respiratory and Enteric Virus Surveillance System (NREVSS) collaborating laboratories and reported to CDC/Influenza Division were positive for influenza. Over 99% of all subtyped influenza A viruses being reported to CDC were 2009 influenza A (H1N1) viruses. The proportion of deaths attributed to pneumonia and influenza (P&I) was above the epidemic threshold. Eighteen influenza-associated pediatric deaths were reported. Fifteen of these deaths were associated with 2009 influenza A (H1N1) virus infection and three were associated with an influenza A virus for which the subtype was undetermined. The proportion of outpatient visits for influenza-like illness (ILI) was above the national baseline. All 10 regions reported ILI above region-specific baseline levels. Forty-eight states reported geographically widespread influenza activity, two states reported regional influenza activity, the District of Columbia reported local influenza activity; Puerto Rico and Guam reported sporadic influenza activity, and the U.S. Virgin Islands did not report.

Weekly Laboratory-Confirmed Influenza-Associated Hospitalizations and Deaths, National Summary, August 30 – October 31, 2009



Percentage of Visits for Influenza-like Illness (ILI) Reported by the U.S. Outpatient Influenza-like Illness Surveillance Network (ILINet), Weekly National Summary, October 1, 2006 - October 31, 2009





To access the entire CDC weekly surveillance report, visit <http://www.cdc.gov/flu/weekly/fluactivity.htm>

From <http://www.cdc.gov/h1n1flu/updates/us/#totalcases>:

U.S. Influenza and Pneumonia-Associated Hospitalizations and Deaths from Aug 30 – October 31, 2009

Cases Defined by Influenza Laboratory-Tests**	Hospitalizations	Deaths
	17,838	672

**States report weekly to CDC either 1) laboratory-confirmed influenza hospitalizations and deaths or 2) pneumonia and influenza syndrome-based cases of hospitalization and death resulting from all types or subtypes of influenza. Although only the laboratory confirmed cases are included in this report, CDC continues to analyze data both from laboratory confirmed and syndromic hospitalizations and deaths.

National (MMWR 58(44);1236-1241, November 13): An MMWR article "Update: Influenza Activity --- United States, August 30--October 31, 2009" is now available online at http://www.cdc.gov/mmwr/preview/mmwrhtml/mm5844a4.htm?s_cid=mm5844a4_e.

International (WHO, October 30): During the weeks 40-41, the pandemic influenza A (H1N1) 2009 virus continued to be the predominant circulating strain of influenza in most of the countries with influenza activity.

In the northern hemisphere, widespread outbreaks of pandemic influenza A (H1N1) 2009 were reported in the United States of America, a number of regions in Canada and some countries in Europe and Asia. These countries included Belgium, Israel, Luxembourg, Netherlands and the United Kingdom. China and China Hong Kong Special Administrative Region reported widespread pandemic influenza A (H1N1) activity with cocirculation of H1, H3 and B.

Regional outbreaks were reported in Austria, Japan, Malta, Spain and Sweden while Italy, Iran, Norway, Russian Federation and Tunisia reported local levels on pandemic influenza A (H1N1) activity.

In the southern hemisphere, pandemic influenza transmission continued to decrease or had returned to baseline. In Central and South America, Barbados, Bolivia, Columbia, Costa Rica, Cuba, El Salvador, Honduras, Mexico, Nicaragua, Panama, Suriname and Trinidad and Tobago reported pandemic influenza A (H1N1) activity.

Sporadic pandemic influenza A (H1N1) 2009 activity was reported in Australia, Argentina, Belarus, Brazil, Bulgaria, Chile, Denmark, France, France - French Guiana, France - Guadeloupe, Germany, Greece, Hungary, Kenya, Mongolia, New Zealand, Poland, Portugal, Romania, Slovenia and Switzerland.

The level of seasonal influenza activity in most countries was low with only sporadic detections except in China where outbreaks of H3 were reported as well as low levels of H1 and B. Sporadic seasonal influenza activity was observed in Australia (H1), France (B), France - French Guiana (H1), France - Saint

Martin, Kenya (H3,B), Madagascar (H3,B), Morocco (H1,H3,B), Romania (H3) and the Russian Federation (H3,B).

Bosnia and Herzegovina, Estonia, Georgia, Kazakhstan, Latvia, Lithuania, Serbia, Slovakia, South Africa, Turkey, Ukraine and Uzbekistan reported no influenza activity.

MDCH reported **WIDESPREAD INFLUENZA ACTIVITY** to the CDC for the week ending Nov. 7, 2009.

For those interested in additional influenza vaccination and education information, the MDCH *FluBytes* is available at http://www.michigan.gov/mdch/0,1607,7-132-2940_2955_22779_40563-125027--,00.html.

Avian and Novel Influenza Activity

WHO Pandemic Phase: Phase 6 – characterized by increased and sustained transmission in the general population. Human to human transmission of an animal or human-animal influenza reassortant virus has caused sustained community level outbreaks in at least two WHO regions.

National, Vaccine Effectiveness (MMWR 58(44);1241-1245 [edited], November 13): Since first reports in April 2009 (1), the 2009 pandemic influenza A (H1N1) virus has spread around the world (2). The pandemic virus is antigenically distinct from seasonal influenza A (H1N1) viruses targeted by seasonal influenza vaccines. Results from recent serologic studies have suggested that seasonal influenza vaccines are unlikely to provide substantial cross-protection against infection with the pandemic H1N1 virus (3). However, how serologic results correlate with the complex immune responses that confer clinical protection remains uncertain. To complement the serologic studies and evaluate the effectiveness of 2008--09 trivalent seasonal influenza vaccine against laboratory-confirmed pandemic influenza A (H1N1) illness, CDC used available data to conduct a case-cohort analysis. The analysis used surveillance reports from eight states of persons aged >18 years with confirmed pandemic H1N1 illness during May--June 2009. Influenza vaccination coverage estimates for these states during the 2008--09 influenza season (September 2008--February 2009) were estimated for the population cohort by using preliminary Behavioral Risk Factor Surveillance Survey (BRFSS) data (4). The overall vaccine effectiveness (VE) against pandemic virus illness after adjustment for age group and presence of chronic medical conditions that increase the risk for complications from influenza was -10% (95% confidence interval [CI] = -43%--15%). Current evidence from this study and other studies does not suggest that seasonal influenza vaccination either decreases or increases the risk for acquiring pandemic H1N1 illness. To prevent seasonal and pandemic influenza, CDC recommends vaccination with seasonal and pandemic influenza vaccines.

The entire article is available online at the following web address:
http://www.cdc.gov/mmwr/preview/mmwrhtml/mm5844a5.htm?s_cid=mm5844a5_e.

International, Swine (OIE [edited], November 5): Immediate notification report, Report Date: 05/11/2009, Country: Chinese Taipei

Disease Name: A/H1N1 influenza
Date of first confirmation of the event 02/11/2009, Date of Start of Event 19/10/2009, Date Submitted To OIE 05/11/2009

Outbreak (this report - submitted)
Prefecture/City: T'AI-TUNG, Unit Type: Farm
Species: Swine, Susceptible: 3346, Cases: 160, Deaths: 0, Destroyed: 0, Slaughtered: 0
Affected Population 5-week-old piglets

Epidemiological comments: A/H1N1 influenza virus surveillance programme began since January 2009 in the country. Clinical signs such as coughing and diarrhoea were observed in a pig farm located in T'ai-Tung County on 19 October 2009. The owner reported it to the prefecture animal disease control competent authority. Official veterinarian inspected this farm right away. Samples were collected and sent to the Animal Health Research Institute. Disinfection and cleaning of the index farm has been conducted and completed. Movement control has been also implemented. The positive results of virus isolation, real-time RT-PCR and gene sequencing demonstrated that this outbreak was caused by H1N1 influenza A virus.

The sick pigs in the index farm have recovered. One pig farm within 1km radius of the index farm has been under vigilant monitoring and no clinical or epidemiological evidence of infection has been found. Seven pig farms within 3km radius of the index farm have also been under intensive monitoring.

Source of the outbreak(s) or origin of infection • Unknown or inconclusive

Control Measures Applied: Movement control inside the country, Disinfection of infected premises

International, Avian (OIE [edited], November 11): Immediate notification report, Report Date: 06/11/2009, Country: Czech Republic

Causal Agent: Low pathogenic avian influenza virus Serotype(s) H5N3

Date of first confirmation of the event: 05/11/2009

Date of Start of Event 05/11/2009, Date Submitted To OIE 06/11/2009

Outbreak (this report - submitted)

Province: JIHOČESKÝ, District: Ceske Budejovice, Unit: Farm, Location: Trebin

Species: Birds, Susceptible: 280, Cases: 1, Deaths: 0, Destroyed: 0, Slaughtered: 0

Affected Population: Holding with mallard ducks for restocking of game. All susceptible animals will be destroyed on 7 November 2009.

Epidemiological comments: 40 cloacal swabs were sampled in the frame of regular monitoring with one positive result. All animals were without clinical signs. All susceptible animals will be destroyed on 7 November 2009.

Source of the outbreak(s) or origin of infection: Unknown or inconclusive

Control Measures: Quarantine, Movement control inside the country, Screening, Zoning, Disinfection of infected premises/establishment(s)

To be applied: Stamping out

Michigan Wild Bird Surveillance (USDA, as of November 12): For the 2009 testing season (April 1, 2009-March 31, 2010), HPAI subtype H5N1 has not been recovered from any of the 102 Michigan samples tested to date, including 58 live wild birds, 30 hunter-killed birds and 14 morbidity/mortality specimens. H5N1 HPAI has not been recovered from 13,505 samples tested nationwide. For more information, visit the National HPAI Early Detection Data System at <http://wildlifedisease.nbii.gov/ai/>.

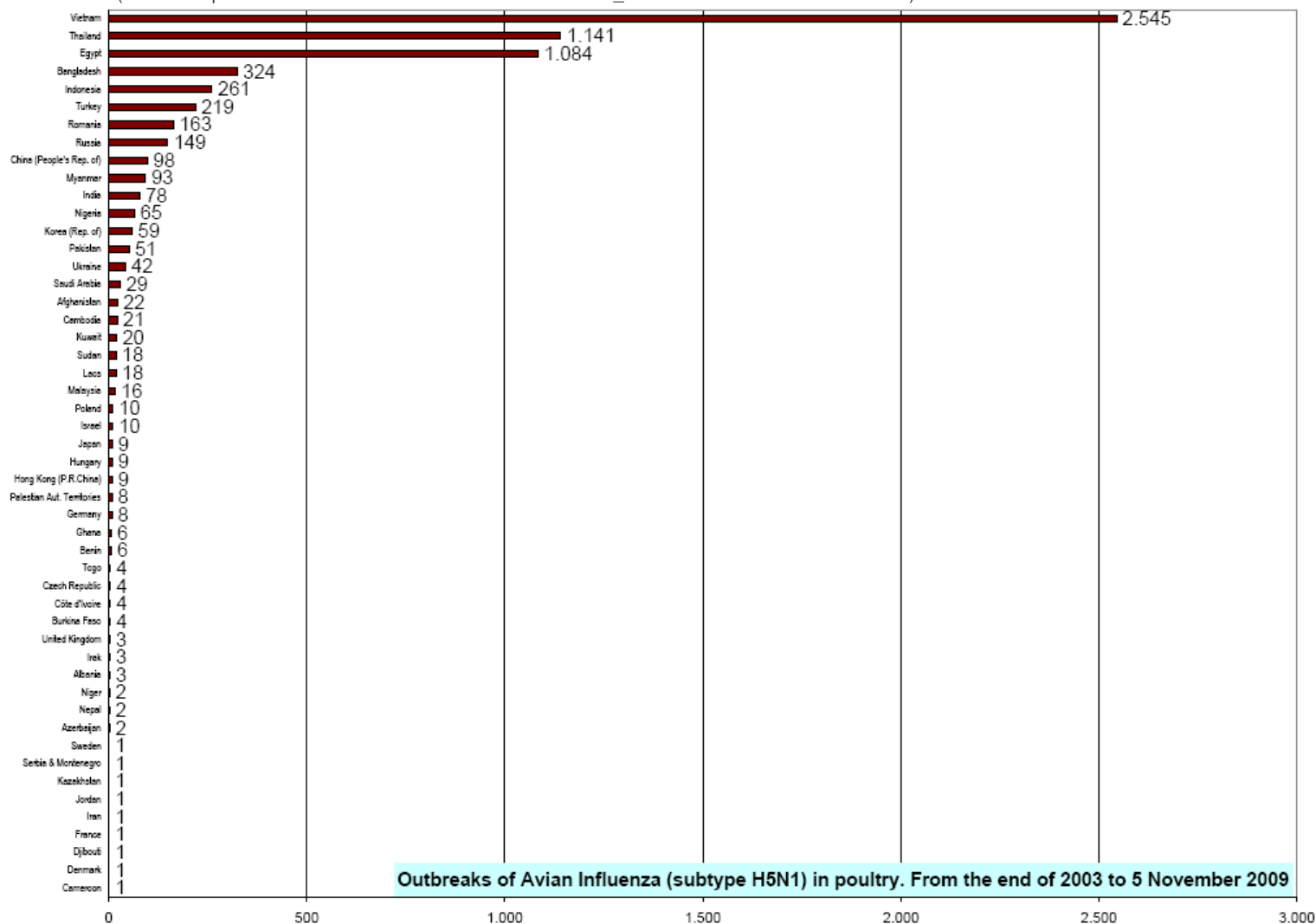
To learn about avian influenza surveillance in Michigan wild birds or to report dead waterfowl, go to Michigan's Emerging Disease website at <http://www.michigan.gov/emergingdiseases>.

Please contact Susan Peters at PetersS1@Michigan.gov with any questions regarding this newsletter or to be added to the weekly electronic mailing list.

Contributors

MDCH Bureau of Epidemiology - Sally Bidol, MPH; Cristi Carlton, MPH; Edward Hartwick, MS

MDCH Bureau of Laboratories – Anthony Muyombwe; Victoria Vavricka

Table 1. H5N1 Influenza in Poultry (Outbreaks up to November 5, 2009)(Source: http://www.oie.int/downld/AVIAN%20INFLUENZA/A_AI-Asia.htm Downloaded 11/12/09)**Table 2. H5N1 Influenza in Humans (Cases up to September 24, 2009)**

(http://www.who.int/csr/disease/avian_influenza/country/cases_table_2009_09_24/en/index.html Downloaded 9/24/2009)

Cumulative number of lab-confirmed human cases reported to WHO. Total number of cases includes deaths.

Country	2003		2004		2005		2006		2007		2008		2009		Total	
	cases	deaths	cases	deaths	cases	deaths	cases	deaths	cases	deaths	cases	deaths	cases	deaths	cases	deaths
Azerbaijan	0	0	0	0	0	0	8	5	0	0	0	0	0	0	8	5
Bangladesh	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0
Cambodia	0	0	0	0	4	4	2	2	1	1	1	0	0	0	8	7
China	1	1	0	0	8	5	13	8	5	3	4	4	7	4	38	25
Djibouti	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0
Egypt	0	0	0	0	0	0	18	10	25	9	8	4	36	4	87	27
Indonesia	0	0	0	0	20	13	55	45	42	37	24	20	0	0	141	115
Iraq	0	0	0	0	0	0	3	2	0	0	0	0	0	0	3	2
Lao People's Democratic Republic	0	0	0	0	0	0	0	0	2	2	0	0	0	0	2	2
Myanmar	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0
Nigeria	0	0	0	0	0	0	0	0	1	1	0	0	0	0	1	1
Pakistan	0	0	0	0	0	0	0	0	3	1	0	0	0	0	3	1
Thailand	0	0	17	12	5	2	3	3	0	0	0	0	0	0	25	17
Turkey	0	0	0	0	0	0	12	4	0	0	0	0	0	0	12	4
Viet Nam	3	3	29	20	61	19	0	0	8	5	6	5	4	4	111	56
Total	4	4	46	32	98	43	115	79	88	59	44	33	47	12	442	262